

**ANNUAL SEA TURTLE MONITORING REPORT
MAINTENANCE DREDGING**

**GALVESTON DISTRICT
FISCAL YEAR 2004**

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT
MAINTENANCE DREDGING - FISCAL YEAR 2004

INTRODUCTION

This report is submitted in fulfillment of requirements of the Endangered Species Act and the Section 7 Consultation - Biological Opinion concerning Dredging of Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Areas Using Hopper Dredges by COE Galveston, New Orleans, Mobile, and Jacksonville Districts (Consultation Number F/SER/2000/01287) dated November 19, 2003. Specifically this report, summarizing hopper dredging operations in Fiscal Year (FY) 2004 within the Galveston District, is submitted in compliance with reasonable and prudent measure No. 9 - Reporting.

The following four hopper maintenance dredging projects were completed in FY 2004.

Freeport Harbor	August 11, 2003 – October 14, 2003
Brazos Island Harbor	December 1, 2003 – December 18, 2003
Matagorda Ship Channel	January 18, 2004 – February 6, 2004
HGNC Entrance Channel	May 12, 2004 – September 15, 2004
HGNC Mid-Bay	July 10, 2004 – October 8, 2004

The following hopper maintenance dredging project was started in FY 2004, but extends into FY 05.

Freeport Harbor	September 4, 2004 – November 14, 2004
-----------------	---------------------------------------

The use of hopper dredges to maintain these navigation projects is necessary because of three factors: safety, weather conditions and productivity. These factors are closely interrelated; however, the emphasis is placed on safety. The nearshore Gulf of Mexico is characterized by a wide shallow shelf. The Sabine-Neches Waterway, for example, extends about 22 miles into the Gulf. A cutterhead dredge operating offshore would require a pipeline length that could extend for several miles.

The dredges operating in these channels must be highly mobile to rapidly maneuver out of the way of other vessels. Pipeline cutterhead dredges are not self-propelled, and are held into position with spuds. Furthermore, the swing of the cutterhead is controlled by cables attached to the cutterhead arm. These cables are anchored along the outer limits of the channel to be dredged. Prior

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT - FY 2004 (Cont'd.)

to moving the dredge, tenders must raise the anchors, and a towboat must be fastened to the dredge. These characteristics prevent the pipeline dredge from quickly moving out of the channel when other vessels approach. From a practical standpoint, dredges are generally not relocated for normal ship traffic; rather, dredging may be interrupted, but the dredge remains a stationary obstruction in half of the channel. This situation is encountered in inland bays. The use of hopper dredges in the Gulf avoids such a stationary obstruction.

Weather conditions also affect the safety of the dredge and crew. Pipeline dredges were not designed to operate in open-sea conditions. Due to the reasons stated above, these dredges cannot rapidly demobilize in harsh weather. The pipelines used to transport the dredged material to the placement sites would also be highly susceptible to breaking during rough weather. Even in relatively sheltered bays, cutterhead dredges often stop dredging in rough weather, and during frontal passages. During these periods, only water is pumped to keep tension on the pipelines to prevent breaking. In the open Gulf of Mexico, this precaution would not be effective, even if it were possible to leave the dredge offshore. During relatively calm weather conditions, only the largest cutterhead dredges would be able to operate efficiently. Sea swells make it difficult to control the depth of the cutterhead; consequently, this affects the dredging operation. To illustrate this point, in 1977, a 27-inch diameter pipeline cutterhead dredge sank near the jetties while dredging the Entrance Channel of the Port Mansfield project. A frontal passage caused large waves, which battered the dredge, breaking the spud used to secure the vessel. Water entered the dredge through cable ports faster than it could be pumped out. A 27-inch dredge is one of the largest dredges commonly used within the Galveston District.

Productivity of the dredging operation is important because the purpose of dredging is to remove shoals and provide a safe depth for waterborne traffic. The use of pipeline dredges in the open Gulf would result in frequent relocations, or other interruptions, due to weather and traffic conditions. Consequently, it would take longer to remove shoals, which present a hazard to safe navigation. The longer the time to remove the shoals, the longer a dredge must be on site to maintain the channel. The presence of the dredge and pipeline, themselves, present an obstruction to safe navigation. For these reasons, hopper dredges are used to maintain deep-draft entrance channels in the Galveston District.

The Galveston District endeavors to schedule hopper-dredging operations during the recommended December 1 through March 31 window, wherever feasible. However, it is impossible to schedule all hopper-dredging projects during this time frame, due to the availability of the hopper dredge fleet. Hopper dredging priorities are developed in concert with other Corps of Engineers

ANNUAL SEA TURTLE MONITORING REPORT GALVESTON DISTRICT - FY 2004 (Cont'd.)

Districts that conduct these operations along the Atlantic and Gulf Coasts. The priorities are determined after considering the dredging needs and resident sea turtle populations within the various Districts.

TURTLE MONITORING PROGRAM

A result of the consultation process was the requirement to document turtle takes by the dredges. In order to accomplish this task, before hopper dredging operations commenced, they were equipped such that all inflows and overflows would be screened. The configuration and location of the screens depends upon the construction of the dredge. The starting mesh size of this screening is 4-inches by 4-inches. Additionally, around-the-clock monitoring by NMFS-approved turtle inspectors was conducted to identify any turtles or turtle parts that were caught on these screens. Draghead deflectors were also deployed to deflect any turtles that may happen to be in, or near, the path of the draghead during excavation. The design of the deflectors is such that a sediment riffle is created ahead of the draghead, cushioning any contact with turtles thereby preventing injuries.

The observers inspected and cleaned all inflow and overflow screening at the end of each load. Dragheads and deflectors were also inspected immediately after each load, and dredge personnel were informed if repairs were necessary. Data sheets were completed daily, detailing all biological samples and debris found in the screening and dragheads. The observers also recorded the start, end and discharge times for each load, the specific location of the dredging area, the type of material being dredged, weather, tide and water temperature data, the condition of the screening, and any other pertinent information. Any sea turtle encounters or takes would be described on a separate incident report form. Additionally, all incidents would be photographed and diagrams would be made of the specimen sampled. Dead specimens would be frozen until all concerned parties were notified. Specimens would then be weighted with scrap iron and disposed of at the dredged material placement site, thereby ensuring that these same samples would not wash ashore or be taken again by the dredge.

A bridge watch for sea turtles and marine mammals was maintained during all daylight hours, except when the observer was off the bridge, cleaning and inspecting the screens and dragheads. All sightings of cetaceans and sea turtles were recorded in a bridge watch logbook.

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT - FY 2004 (Cont'd.)

SCREEN CONFIGURATIONS

Turtle monitoring activities were conducted aboard six different hopper dredges during FY 2004. These were the *Atchafalaya*, *Bayport*, *B.E. Lindholm*, *Dodge Island*, *Eagle I*, and *Newport*. Each of these vessels was required to have rigid draghead deflectors, and 100% inflow screening or overflow screening with openings starting at 4" x 4."

PROJECTS

Freeport Harbor - Entrance and Jetty Channels

On August 11, 2003 the contract hopper dredge *Bayport* began work on the Entrance and Jetty Channels of the Freeport Harbor Project. Contract specifications required dredging an estimated 889,000 cubic yards (CY) of shoal material. The required depth of dredging was 49 feet below Mean Low Tide (MLT, Corps of Engineers Datum), with 2 feet of allowable overdepth dredging along the Entrance Channel and 47 feet MLT with 2 feet of overdepth along the Jetty Channel.

Dredging began on August 11, 2003, and was completed on October 14, 2003. A total of 532 loads of dredged material were collected and deposited into Placement Area No. 1-A. Dredging was performed between Stations 71+52 along the Jetty Channel and (-)80+00 along the Outer Bar Channel. A total of 1,650,000 CY of material were excavated from this project.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Manson Construction Co.

Relocation trawling was conducted on a 24-hour daily basis during dredging operations. A total of 6 turtles were tagged and relocated. This total includes; 4 loggerheads and 2 Kemp's ridleys.

During the performance of this dredging, no lethal turtle takes were experienced. The surface water temperature ranged from 23.3°C – 30.0°C.

An abundance of debris and clay caused excessive clogging of the screening aboard the dredge. Some of these screens were opened to alleviate this problem.

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT - FY 2004 (Cont'd.)

Brazos Island Harbor - Brownsville Channel

On December 1, 2003 the contract hopper dredge *Dodge Island* began work on a segment of the Brownsville Channel along the Brazos Island Harbor (BIH) Project. Contract specifications required dredging an estimated 491,000 cubic yards (CY) of shoal material. The required depth of dredging was 44 feet below Mean Low Tide (MLT, Corps of Engineers Datum), with 2 feet of allowable overdepth dredging.

Dredging began on December 1, 2003 and was suspended on December 18, 2003. A total of 82 loads of dredged material were collected and deposited into the nearshore berm at Placement Area 1A. Dredging was performed between Stations 1+423 and 13+000. A total of 355,957 CY of material were excavated from this project.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting under a subcontract to the dredging contractor, Great Lakes Dredged and Dock Co., Inc.

Prior to dredging, risk-assessment trawling was conducted on a 24-hour daily basis over a period of five days from September 30, 2003 to October 5, 2003. A total of 127 tows were conducted. No turtles were captured during this effort.

Relocation trawling was conducted on a 24-hour daily basis during dredging operations. A total of 13 green turtles were tagged and relocated.

During the performance of this dredging, three green sea turtle takes were documented. These takes occurred on December 8 in load No. 37, December 12, in load No. 53, and December 18 in load No. 82. The water temperatures during these takes were 20.5°, 19.5°, and 18.8°C, respectively.

Water temperature measurements were taken in conjunction with the screen and draghead monitoring. The water temperature ranged from 18.8°C – 24.4°C at the surface.

Dredging was suspended prior to completion of work as a result of these takes. The sequence of work was prioritized to remove the most heavily shoaled areas first; so, when work was halted,

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT - FY 2004 (Cont'd.)

only lighter shoals remained. The harbor pilots were consulted about the situation and they indicated that the condition of the channel was satisfactory.

Coordination was conducted with the Sea Turtle Stranding and Salvage Network (STSSN). There was a report of one stranding that bore injuries that indicated a potential encounter with a hopper dredge. This stranding was located about 2.1 miles north of the BIH jetties.

One of the recurring difficulties experienced by the observers involved the excessive amounts of clay that were often dredged. The clay was taken as cohesive masses which often clogged the screening and made cleanup physically difficult and time-consuming. As a result, the inflow screening was opened to prevent the clay accumulations. Inflow screen was reduced to about 50% effectiveness; however, overflow remained 100% effective.

Matagorda Ship Channel - Entrance Channel

On January 18, 2004 the contract hopper dredge *Atchafalaya* began work on the Entrance Channel of the Matagorda Ship Channel Project. Contract specifications required dredging an estimated 329,000 cubic yards (CY) of shoal material. The required depth of dredging was 41 to 43 feet below Mean Low Tide (MLT, Corps of Engineers Datum), with 2 feet of allowable overdepth dredging.

Dredging began on October 21, 2001, and was completed on February 6, 2004. A total of 238 loads of dredged material were collected and deposited into Placement Area No. 1. Dredging was performed between Stations -9+600 and -19+400. A total of 365,226 CY of material were excavated from this project.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by REMSA, Inc. under a subcontract to the dredging contractor, B+B Dredging Co.

Relocation trawling was conducted on a 24-hour daily basis during dredging operations. A total of 427 tows were performed. No turtles were captured for relocation.

During the performance of this dredging, one lethal turtle take was experienced. This was a green turtle taken on January 21 in Load No. 100. The water temperature during this incident was about 14°C.

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT - FY 2004 (Cont'd.)

Water temperature measurements were taken in conjunction with the screen and draghead monitoring. The water temperature ranged from 12.0°C – 15.0°C at the surface.

Coordination was conducted with the Sea Turtle Stranding and Salvage Network (STSSN). There were no reports of stranded turtles that bore injuries consistent with a potential encounter with a hopper dredge.

Houston-Galveston Navigation Channels - Jetty and Entrance Channels

On May 12, 2004, the contract hopper dredge, *Bayport* began work on the Jetty and Entrance Channels of the Houston-Galveston Navigation Channels project. On May 28, the dredge *Newport* began working. Contract specifications required dredging an estimated 5,278,900 CY of material. The required depth of dredging ranged from 47 to 49 feet below Mean Low Tide (MLT, Corps of Engineers Datum), with 2 feet of allowable overdepth.

Dredging began on May 12, 2004, and was completed on September 15, 2004 with both dredges working simultaneously throughout this period. A total of 1,629 loads of dredged material were collected. Dredging was performed between Stations 0+000 and 76+000. A total of 4,632,689 CY of material were excavated from this project and used beneficially to nourish a near-shore fishery habitat berm.

The dredges were equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Manson Construction Co.

Relocation trawling was conducted on a 24-hour daily basis during dredging operations. A total of 3 Kemp's ridley turtles were captured, tagged and relocated safely. Copies of the tagging reports associated with these turtle captures are on the enclosed CD.

During the performance of this dredging, three lethal turtle takes were documented. Two of these takes were identified as loggerheads, the first take could not be positively identified because it bore characteristics of both loggerhead and Kemp's ridley. The takes occurred on June 11 in *Bayport* load No. 197, August 22 in *Bayport* load No. 699, and August 24 in *Newport* load No. 540. The water temperatures during these takes were 28°, 29°, and 27°C, respectively. Copies of the observer reports are on the enclosed CD.

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT - FY 2004 (Cont'd.)

Surface water temperature measurements were taken in conjunction with the screen and draghead monitoring. The water temperature ranged from 23.0°C – 34.0°C.

The material dredged consisted of primarily sand, mud, and clay. Both dredges began work with 100% inflow screening. During the conduct of work, the clay either clogged the screening or forced the screening to unintentionally open. Following consultation with NOAA Fisheries Protected Species Branch, the screens were allowed to be open 6 to 8 inches with the stipulation that whenever practicable, the screens would be closed. Even with the opening, screening effectiveness was estimated to be 75 to 85 percent. During these periods, 100% overflow screening was conducted.

Houston-Galveston Navigation Channels - Mid-Bay Channel

On July 10, 2004, the contract hopper dredge, *B.E. Lindholm* began work on the Mid-Bay Channel of the Houston-Galveston Navigation Channels project. This work was conducted under a modification to an existing contract for dredging the Mid-Bay Channel. The work described is in addition to hopper dredging activities that were completed in Fiscal Year 2003.

Dredging began on July 10, 2004, and was completed on October 8, 2004. A total of 344 loads of dredged material were collected. A total of 1,184,664 CY of material were excavated from this project and used beneficially to nourish a near-shore fishery habitat berm.

The dredges were equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Weeks Marine, Inc.

During the performance of this dredging, no lethal turtle takes were experienced. The surface water temperature ranged from 27.8°C – 28.6°C. Copies of the observer reports are on the enclosed CD.

Surface water temperature measurements were taken in conjunction with the screen and draghead monitoring. The water temperature ranged from 23.0°C – 34.0°C.

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT - FY 2004 (Cont'd.)

Freeport Harbor - Entrance and Jetty Channels

On September 4, 2004 the contract hopper dredge *Eagle I* began work on the Entrance and Jetty Channels of the Freeport Harbor Project. Since most of this project was conducted in FY 2005, it will be discussed in more detail in the FY 2005 Annual Report.

No lethal turtle takes were experienced during this dredging.

Relocation trawling is being conducted on a 24-hour daily basis during dredging operations. One loggerhead was captured on September 24, 2004. This turtle was tagged and released unharmed on September 25. A copy of the tagging and trawl reports are on the enclosed CD.

COSTS

The costs incurred in performing the turtle-monitoring program during FY 2004 include the costs for equipping and maintaining screens and draghead deflectors on contractor-owned dredges, as well as providing NMFS-approved observers and relocation trawling. In addition to the direct costs are District costs for administration and oversight. Below is a table depicting the costs for FY 2004. However, costs not included in this discussion are unquantifiable costs associated with decreased dredging efficiency which may result from the use of the draghead deflectors, and downtime experienced during cleaning of excessively fouled screens. Estimates of these increased costs are anticipated by the potential contractors during the preparation of bids, and there is no way to determine the actual value of these costs.

PROJECT	COST OF MONITORING
Freeport Harbor	\$114,500.00
Brazos Island Harbor	78,270.00
Matagorda Ship Channel	15,350.00
HGNC Entrance Channel	492,350.00
HGNC Mid-Bay	49,595.00
District labor	52,504.55
TOTAL	\$802,569.55

ANNUAL SEA TURTLE MONITORING REPORT
GALVESTON DISTRICT - FY 2004 (Cont'd.)

SUMMARY

During Fiscal Year 2004, five maintenance-dredging projects were completed by hopper dredges. Below is a table summarizing lethal turtle encounters.

Relocation trawling conducted with these dredging projects captured, tagged, and released a total of 22 turtles. However, only 17 were relocated in FY 2004. During dredging of Freeport Harbor project that began in FY 2003, five turtles were relocated in FY 2003.

INCIDENTAL TAKES OF SEA TURTLES

GALVESTON DISTRICT MAINTENANCE DREDGING

FY 2004

Date Taken	Project	Dredge	Channel Reach	Water Temp. (°C)	Species and Authorized Incidental Take per Fiscal Year			
					Kemp's ridley 7	Loggerhead 15	Green 5	Hawksbill 1
8 Dec 03	BIH	<i>Dodge Island</i>	26°03.364' N, 97°11.051' W	21.0			1	
12 Dec 03	BIH	<i>Dodge Island</i>	26°03.284' N, 97°10.319' W	20.0			1	
18 Dec 03	BIH	<i>Dodge Island</i>	26°03.284' N, 97°10.319' W	18.8			1	
24 Jan 04	MSC	<i>Atchafalaya</i>	28°24.41' N, 96°18.36' W	14.0			1	
11 Jun 04	HGNC	<i>Bayport</i>	29°20.64' N, 94°43.84' W	28.0	1			
23 Aug 04	HGNC	<i>Bayport</i>	29°20.098' N, 94°40.526' W	29.0		1		
24 Aug 04	HGNC	<i>Newport</i>	29°19.360' N, 94°39.162' W	26.9		1		
TOTAL TAKE					1	2	4	0
ALLOWABLE TAKE REMAINING					6	13	1	1